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Treatment of Obesity

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INTRODUCTION

Obesity is one of the major health problems in modern society. A recent National Institutes of Health Consensus Development Conference (1985) concluded that being overweight by 20% or more of ideal body weight represents a significant risk for increased mortality and morbidity. Among the health risks associated with obesity are cardiovascular disease, hypertension, diabetes, and some types of cancers (Bray, 1985). In the United States, approximately 30% of women and 25% of men are 20% or more overweight. Obesity is also becoming increasingly common in children and adolescents (Gortmaker, Dietz, Sobal, & Wehler, 1987). From the mid-1960s to the late 1970s, the prevalence of obesity increased from 17.6% to 27.1% in 6- to 11-year-old children and from 15.8% to 21.9% in 12- to 17-year-olds.

In addition to increased health risks, there are also significant psychosocial consequences of obesity. Negative stereotypes about obesity are endemic to Western society. Obese people are commonly seen as being responsible for their obesity and generally less attractive, likable, intelligent, and capable than normal-weight individuals (Wooley, 1987). This stigmatization of obesity has important practical effects as well. Obese persons, for example, are less likely to be admitted to college than normal-weight people with similar qualifications (Canning & Mayer, 1966). Obese people are also more likely to face discrimination in the work environment (Allon, 1982) and have more difficulty obtaining employment (Roe & Eickwort, 1976). The extreme prejudice against fatness is apparent even in young children (Staffieri, 1967). Young children are more likely to rate obese silhouettes as "stupid", "ugly" and "lazy" than average-weight or thin silhouettes. Obese persons often internalize or passively accept these negative attitudes and thereby are apt to expect failure of themselves and criticism from others (Wooley, 1987).

The treatment of obesity would appear to be a fairly straightforward task: consume fewer calories and expend more calories. However, successful weight loss is deterred by complex biological, psychological, and social factors. For example, research indicates that there are

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strong physiological pressures (e.g., a high number of fat cells) that help maintain obesity (Sjostrom, 1980). Furthermore, keeping excess weight off requires permanent changes in lifestyle. In recent years, cognitive-behavioral approaches have provided effective methods of obtaining significant weight loss. Comprehensive treatment of obesity involves the decision to seek or provide treatment, choosing the initial form(s) of intervention with appropriate revision over time (e.g., working for weight loss), and maximizing the likelihood of weight loss maintenance.

ASSESSMENT

The Decision to Lose Weight

The client's actual weight, desired weight loss, and ideal weight (based on the Metropolitan tables—Table 1) can be examined to determine how realistic and appropriate the goal weight is. A client 20 pounds overweight who wishes to lose 30 pounds clearly presents a different situation than a person who is presently 50 pounds overweight who has never been within the ideal weight range of the Metropolitan table. Similarly, someone who hopes to lose 40 pounds in 4 weeks may pose different concerns for the clinician. A balance is necessary between what the client wishes to lose, how much on average they are above the ideal weight range, and their willingness to commit time and energy to the process of weight loss.

People seek help to lose weight for a wide range of motivations and with varying levels of readiness. The final choice of what, if any, treatment to pursue is ultimately up to the client. However, thorough assessment of a person's reasons for seeking treatment and factors related to outcome will best set the groundwork for making and following through on the decision to lose weight.

The main goal of the initial contact with the potential weight loss client is to put her or his weight goals and present weight status in an appropriate context. This includes not only components directly relevant to weight loss but also the many other aspects of the person's life (e.g., physical, social, psychological, financial). For example, if a client has severe arthritis, then vigorous walking or running will not be advisable, and physical activities such as swimming may be explored as a means to increase caloric expenditure. Likewise, a lack of assertiveness with other people may hinder efforts to control intake in social settings, and therefore assertiveness training could be incorporated into the treatment plan. Not only must the need for or importance of weight loss be addressed but also the individual's readiness. Appropriate postponement of a weight loss program may be a positive step in some situations. If the client cannot commit the time or energy needed to achieve weight loss for whatever reasons, then the clinician will probably best serve the client by deferring weight loss treatment. Alternatively, time may be spent on dealing with why such a committment cannot be made, whether it is a matter of some more pressing problem or more of a motivational issue.

The initial step is to assess the client's problems and issues. Why is she or he seeking to lose weight at the present time? Some persons, may be more motivated by external forces (e.g., physician's recommendations, pressure from family members), whereas others have personal reasons (e.g., improving one's appearance). Following Brownell (1988), the client can list reasons for and against beginning a weight loss program (Table 2).

For example, Bob would seem to have more reasons for not beginning a program at this time. Becky, on the other hand, has more reasons to lose weight then not. The therapist can be particularly helpful in assisting the client to see the potential benefits and costs of weight loss in a balanced manner. In some situations, a client may be seeking weight loss as a means to deal with other problems (e.g., marital disharmony) or have concurrent difficulties (e.g., depression). A joint decision between the therapist and client then needs to be made regarding

TABLE 1. 1983 Metropolitan Height and Weight Tables[a]

Men				
Height:				
Feet	Inches	Small frame	Medium frame	Large frame
5	2	128–134	131–141	138–150
5	3	130–136	133–143	140–153
5	4	132–138	135–145	142–156
5	5	134–140	137–148	144–160
5	6	136–142	139–151	149–168
5	7	138–145	142–154	149–168
5	8	140–148	145–157	152–172
5	9	142–151	148–160	155–176
5	10	144–154	151–163	158–180
5	11	146–157	154–166	161–184
6	0	149–160	157–170	164–188
6	1	152–164	160–174	168–192
6	2	155–168	167–182	172–192
6	3	158–172	167–182	176–202
6	4	162–176	171–187	181–207

Women				
Height:				
Feet	Inches	Small frame	Medium frame	Large frame
4	10	102–111	109–121	118–131
4	11	103–113	111–123	120–134
5	0	104–115	113–126	122–137
5	1	106–118	115–129	125–140
5	2	108–121	118–132	128–143
5	3	111–124	121–135	131–147
5	4	114–127	124–138	134–151
5	5	117–130	127–141	137–155
5	6	120–133	130–144	140–159
5	7	123–136	133–147	143–163
5	8	126–139	136–150	146–167
5	9	129–142	139–153	149–170
5	10	132–145	142–156	152–173
5	11	135–148	145–159	155–176
6	0	138–151	148–162	158–179

[a]Reprinted with permission from *Statistical Bulletin,* 1983, *64,* 2.

which concerns, if any, need to be addressed, and how these effect the decision to begin a weight loss program. For example, Bob listed reducing his wife's nagging as a potential benefits of going on a diet. If he were to go ahead with a diet, his chances of success are limited, nor has he made any positive steps in dealing with the pressure he feels from his spouse.

Examining the person's attitudes about being overweight and his or her expectations about weight loss are also important in the decision-making process. That is, in what ways does the person experience distress related to weight (e.g., lack of fitness as experienced by shortness of breath and/or a sense of being a weak-willed individual because obesity has been allowed to develop)? Clients may also hold realistic beliefs about how weight loss will improve

TABLE 2. Perceived Benefits and Sacrifices of Starting a Diet for Two Overweight Persons[a]

Bob's list	
Benefits	Sacrifices
Stops wife nagging	Give up favorite food
Look better	Go to clinic meetings
	Feel deprived
	Embarrassed about diet around friends
	Fatigue
Becky's list	
Benefits	Sacrifices
More energy	Hard work and sacrifice
Better chance for job	Constant effort
Look better for dating	Must drink less with friends
Wider choice of clothes	
Improve health	

[a]Reprinted with permission from Brownell, K. D. (1988). *The LEARN Program for Weight Control.*

their lives, but some individuals may expect weight loss to result in immediate and dramatic improvements in satisfaction with their lives. Unrealistic attitudes or expectations need to be identified and resolved, or the efficacy of treatment is likely to suffer. One client, for example, felt that her life was a mess financially and emotionally and that her relationship with her husband was steadily deteriorating. Although the initial interview confirmed that many sources of distress were present, some open to change and others not, she repeatedly emphasized her belief that weight loss would somehow result in marked improvement in all aspects of her life. Because she was not open to dealing with problems other than her weight and unwilling to give up her belief about the effects of weight loss, a useful treatment plan was not possible.

In addition to the relatively open-ended assessment already described, the more structured evaluation of information that follows is crucial for weight loss treatment.

WEIGHT STATUS AND WEIGHT HISTORY

The client's current degree of overweight can be most simply determined using a standard height and weight table (Metropolitan Life Insurance Company, 1983). Although such tables do not provide an exact measure of body composition they do provide a practical estimate of the desirable weight range for a given individual (see Table 2). Individuals between 20% and 40% overweight are considered to be mildly obese, 41% to 100% moderately obese, and over 100% morbidly obese. If more exact measures are desired, the most precise method is by underwater weighing (Garrow, 1978). Formulas based on skinfold measurements at several sites on the body (Durnin & Womersley, 1974) also give a good estimate of body fat.

Obesity may be manifested in either hypertrophic or hyperplastic forms. Hypertrophic obesity refers to an increase in fat cell size but not fat cell number. Hyperplastic obesity refers to an increase in fat cell number; obesity, particularly if severe, is often accompanied with increase in fat cell size and number. Individuals who become obese in childhood are more likely to have an increased number of fat cells especially if they are morbidly obese. Fat cells do not appear to be lost even with large weight losses and shrink only to a limited degree. As a result, the heavier childhood-onset person may not realistically be able to reach an ideal weight (Sjostrom, 1980). People who have repeatedly lost and regained significant amounts of weight may also have greater difficulty with weight loss due to findings that suggest that repeated

dieting increases the body's metabolic efficiency (Brownell, Greenwood, Stellar, & Shrager, 1986).

Given the potential impact that type of obesity and repeated dieting have, a detailed weight history is important. Typically, the clinician starts by asking the client his or her weight at 5-year intervals since birth. Significant losses or gains as well as the perceived causes are also reported. The client may talk with parents or teachers or use photographs and so on as a means to gain more information about childhood weights. Deliberate weight loss efforts should be explored in detail. Weight loss method, duration, weight loss, time the loss was kept off, and the client's reactions are all useful information. Family history of overweight and weight-related attitudes should also obtained. Extent of previous dieting, family history, and years since onset of the obesity are all likely to be associated with a more difficult course of weight loss and especially weight loss maintenance (Dubbert & Wilson, 1983). The Stanford Eating Disorders Questionnaire (Agras *et al.*, 1976) is useful for obtaining the basic weight history information that may then be supplemented by discussion with the client. The goal here is to obtain as detailed as possible description of the client's weight history and the background characteristics and events that have influenced that history. An example of such an assessment is given in Figure 1.

Psychological Assessment

In clinical practice with obese persons, standard psychological evaluation including measures of depression (e.g., the Beck Depression Inventory), anxiety (e.g., Spielberger State-Trait Anxiety Inventory), marital and social adjustment (e.g., Locke-Wallace Marital Adjustment Test), work satisfaction, self-concept (e.g., Tennessee Self-Concept Scale), and overall psychopathology (e.g., MMPI) is appropriate. Although obesity is not necessarily linked to any particular type or level of pathology (McReynolds, 1982; Wadden & Stunkard, 1987), the evaluation may reveal factors that will effect the usefulness of weight loss treatment or influence the therapist's recommendations. In addition, psychological assessment provides a second source along with a medical evaluation for placing a person's obesity in an overall context. Thus, a client with marital problems or a significant depression may be suitable for combined weight loss and other therapy. Alternatively, problems may be dealt with on a one-at-a-time basis with, for example, treatment for weight loss being postponed while depression is treated. The crucial point here is that, whereas psychological factors may not predict treatment outcome, interventions for obesity must be conducted with an awareness of the

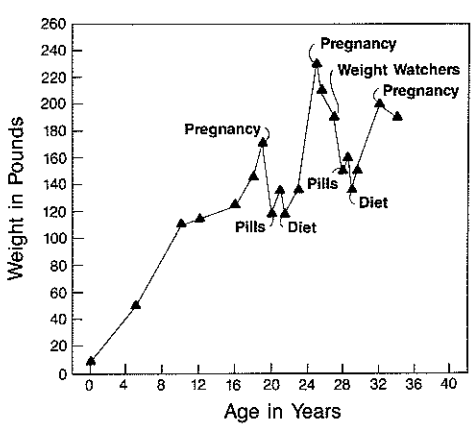

Figure 1. Example of a weight history graph.

person's overall functioning. Similarly, the clinician needs to be sensitive to changes during therapy as some clients do experience negative emotional (Stunkard & Rush, 1974) or social responses (Wadden & Stunkard, 1987).

The potential sources and types of social support in the client's environment should also be evaluated. Are there people in the workplace or at home who could provide support and how have these people helped or hindered past efforts at change. Clients can also describe past efforts to obtain support and their success or failure in doing so.

Medical Evaluation

Although many clients seek weight loss for reasons of appearance a significant proportion are motivated by health reasons. In either case, a pretreatment physical is appropriate. A medical evaluation will provide information about past and present physical status. The client should inform his or her physician of the plan for weight loss and seek the physician recommendations regarding any dietary or exercise restrictions. Periodic monitoring by the physician can provide useful information to the client and therapist about improvements and complications in health parameters during the course of treatment (e.g., blood pressure, cholesterol). For some individuals changes in health risks may be the primary reason for seeking weight loss and thus changes in medical status will be an important measure of treatment outcome. In this sense weight loss may serve as a valuable adjunct or alternative to medical intervention.

TREATMENT

The treatment of choice for mild obesity (20% to 40% overweight) is a predominantly behavioral program. The safety and efficacy of behavioral interventions have been documented in nearly 200 controlled studies (Brownell & Wadden, 1986; Wilson & Brownell, 1980). In recent years, more explicit and in-depth emphasis has also been placed on the physical activity and nutritional aspects of weight loss and maintenance.

In research protocols, treatment typically lasts from 3 to 6 months. However, subjects in such programs often do not reach their goal weights and, therefore, in clinical settings, treatment sessions will usually extend over a period of many months or in some cases 1 or more years. Subjects may be seen individually or in small groups (5 or less) so that individualization of treatment methods is possible. A basic core program is provided in weekly 60- to 90-minute sessions over a 12- to 24-week period. Subsequent meetings may be scheduled less frequently (i.e., twice a month) with a focus on problem solving, and, as goal weight is approached, increasingly on long-term maintenance strategies. The chronic nature of obesity and its treatment indicate that continued treatment may be necessary. Thus, clients should be seen at 6- or 12-month intervals even after successful weight loss. Clients should also be encouraged to make appointments or phone contact as desired. The goal is to prevent or at least allow for recovery from relapse. Follow-up contact with the client is apt to be of most benefit if the focus of these sessions is on problem solving and the development of strategies and less on supportive measures alone (Perri, 1987). The specific problem or problems are identified, coping strategies or possible solutions are developed, and strategies are applied and evaluated until an effective approach is found. For example, the client might report continued problems with eating when visiting friends or relatives. Possible solutions would include increasing the client's assertive refusal of food offers, explaining the situation to other people, and planning ahead so that food consumed while visiting will not result in excessive intake. Subsequently, the client might find that food refusal works well with friends but less well with relatives. However, adjusting food intake before and after the visit to the relatives results in a satisfactory overall intake.

Substantial variety exists from one program to another, but a basic core of techniques is typically applied. There techniques can be categorized into several broad components: self-monitoring, stimulus control, changing eating behavior, and cognitive restructuring. Although early programs used these methods primarily to control and reduce food intake, more recent efforts fruitfully employ behavioral methods to incorporate nutritional and physical activity components into treatment. Programs are also increasingly incorporating a focus on long-term change as opposed to the acute emphasis of many early interventions. One of the major additions to obesity treatment has been the inclusion of a relapse prevention component. Relapse prevention is a way of conceptualizing behavior change that is particularly applicable to the maintenance of change. As will be discussed later, relapse prevention integrates behavioral and cognitive methods as a means for long-term life-style change.

At the start of treatment, the emphasis is on monitoring the client's behavior. The information gained by this method provides a setting in which to learn and apply the techniques and information described later. Each session has as an agenda, a particular topic or method as its focus, as well as reviewing particular problems clients have, and previously taught material. Thus, as treatment progresses, clients enlarge their knowledge base and the number of methods that may be employed. Moreover, through their own review of their efforts as well as in collaboration with the therapist, clients refine their thinking and behavior and develop specific ways in which to optimize change. The need for continued evaluation and modification of the weight loss program cannot be overemphasized. With the assistance of the therapist, the client is conducting a single-subject experiment with the goal of achieving long-term control of his or her energy balance.

Self-Monitoring

Increased awareness and evaluation of one's behavior is an essential element of the behavioral program (Kirschenbaum, 1987). At the start of treatment, the client's records of her or his food intake and the circumstances surrounding that eating provide valuable information about potential areas for changes to both the client and therapist. For example, the records might indicate that specific times (e.g., late evening) or types of foods (e.g., sweets) or moods (e.g., sadness) are associated with higher calorie consumption. Beyond this use as a diagnostic tool at the start of treatment, food records serve to increase the client's awareness throughout treatment and thereby assist client and therapist in noting progress or problems as they occur. In addition, a 2- or 3-week period of self-monitoring at the start of treatment is useful in evaluating the client's readiness and motivation for treatment. Clients who are able to successfully complete the self-monitoring forms are more likely to successfully lose weight than clients who do not complete the forms. A typical self-monitoring form is shown in Table 3. The importance of these records should be stressed to the client.

Reinforcement for changes in behavior or weight may be a useful component of self-monitoring. Both the client and therapist can use the monitoring to assess the client's progress, and, as previously agreed upon goals are met, a reinforcer is given either by the client, the therapist, or significant other. Either small amounts of money or other types of symbolic rewards (e.g., a movie) are suitable. Rewards involving positive alternatives to eating or food-oriented activities are especially valuable. For example, spending time with a friend without eating (e.g., walking in the park, visiting a museum) is a good reinforcer for behavioral change and also enhances a source of pleasure that is not linked with eating.

Reinforcement by an external person (e.g., the therapist or a family member) or self-reinforcement has varying effectiveness for individual clients (Israel & Saccone, 1979). External reinforcement is often helpful in the initial weight loss efforts and, for a subset of people, may be useful in longer term efforts. Individuals able to effectively employ self-reinforcement procedures are less likely to respond well to external direction (Carroll, Yates, & Gray, 1980).

The client and therapist can then modify the source of direction to be more or less internal as is most effective. Over the course of the program, sources and methods of reinforcement may be designed so that the client can continue to apply reinforcement techniques once formal treatment is terminated.

Goal setting may also be usefully employed in the context of self-monitoring. Previous research examining both longer term goals (e.g., weekly) and shorter term goal setting (e.g., daily or more frequently) suggests that setting goals for shorter time periods is of greater benefit (Bandura & Simon, 1977; Dubbert & Wilson, 1984). At each session, the therapist and client can select goals for the following week. These goals are then broken down into daily or even morning, afternoon, and evening subgoals. For example, a calorie reduction goal of 60 calories per day could be set to achieve an endpoint of 420 fewer calories consumed per week. For many clients, making changes in gradual increments results in greater success than making large, abrupt changes. Daily goals are entered at the beginning of the day on the self-monitoring form. As the day progresses, achievement of the goals is evaluated and later goals adjusted to compensate as necessary to reach the overall goal for the day and week. Through setting and monitoring goals or behavior change, the client is better able to evaluate his or her progress and determine particularly problematic situations.

Stimulus Control

Techniques in the realm of stimulus control are intended to decrease environmental cues for problem eating and increase cues for helpful behaviors. A simple example might be the dishes of snacks (e.g., nuts, candies) that some people keep out in easily available sites. Under such conditions, many people would be apt to snack when otherwise they might not. These

Table 3. Record of Food Intake and Related Behavior

Diet Diary		Name			Date	
Food	Time	Place	People	Feelings	Activity	Calories
Breakfast						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
					Total calories	_____
Lunch						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
					Total calories	_____
Dinner						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
					Total calories	_____
Snacks						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
					Total calories	_____
					Total calories for day	_____

techniques were originally based on the work of Schachter and his colleagues (Schachter & Rodin, 1974) that suggested that obese persons are particularly responsive to external cues for eating such as time and place or other stimuli. Subsequent research indicates that a high level of responsiveness to external cues is by no means unique to nor characteristic of obese individuals (Rodin, 1981). As a result, stimulus control techniques may not help obese persons to behave in a "lean" manner but remain useful as a means for controlling food intake by reducing stimuli-enhancing food intake.

Particular techniques include the following. Clients eliminate or reduce visual or other sensory cues by not purchasing problem foods if possible. More important, at home, foods are put away rather than stored in the open. Leftover or extra foods that are problematic should be discarded. Clients can reduce the range the cues associated with eating by eating in only one place (e.g., the dining room table) and not engaging in other activities such as watching television. In order to reduce impulse buying, clients may make grocery lists and plan their trip for a time (or with other people) that will be least likely to be problematic. Similarly, "automatic" eating may be reduced by interrupting the chain of behavior as well as increasing the cost involved. For example, when making toast, the client would take out a slice of bread, toast it, put the bread, jam, etc., away, and finally eat the prepared toast. Not only must the person then consciously decide that he or she wants another piece of toast, but the whole routine must be repeated.

Changing Eating Behavior

As with sensitivity to external stimuli, early evidence suggesting that obese persons eat differently than lean persons has not been born out in further study. Certain persons may eat in an "obesifying" manner during the development of obesity, but, on the whole, the available information does not indicate that certain eating styles cause obesity nor that lean and obese persons eat in a distinct manner (Spitzer & Rodin, 1981). Nonetheless, the methods originally created with the idea of teaching obese persons to eat like normal-weight individuals remain useful for the process of weight loss.

A major area in this area concerns controlling the pace of eating. Literally, this means eating fewer calories per minute during the course of the meal. Clients eat more slowly by extending pauses between bites and putting silverware down after each bite. Foods higher in bulk such as complex carbohydrates (e.g., breads or potatoes with little or no added fat) or salad vegetables are also useful in slowing the pace of intake and reducing total intake (Duncan, Bacon, & Weinsier, 1983). Clients are also asked to pause periodically while eating to assess their level of hunger and to leave at least a small amount of food on their plate at the end of the meal. This helps the person to stop eating when comfortably satisfied rather than eating until the available food is entirely eaten.

Clients may also substitute other activities in place of eating. The earlier in the chain of behavior the greater the likelihood of success. For example, Mary typically eats fairly modestly during the day and early evening when she is working and then spending time with her husband and their two young children. However, later in the evening, the children are in bed, her husband is watching television, and Mary often reports feeling restless and bored, which, in turn, frequently leads to snacking. Eating low-calorie snacks or having smaller snacks might prove effective in controlling intake. A more powerful and likely-to-succeed approach would focus on the earlier component of the behavioral chain that ends with snacking. Activities that are incompatible with eating or enjoyable alternatives to eating could be planned for the problematic time of day. If carefully chosen, those activities will be particularly effective because they will serve not only the goal of controlling eating but will be a source of pleasure in of themselves.

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Beck and his colleagues (Beck, Rush, Shaw, & Emery, 1979) originally defined a cognitive triad in terms of how a person views oneself, one's experiences, and one's future. Concurrent with these three aspects of a person's beliefs and attitudes are the general as well as specific ways in which the person understands, reacts to, organizes, and otherwise interacts with both internal and external stimuli. An overweight person often may not only feel negatively about being heavy but also believe that other people feel similarly. Thus, criticism by others is not only to be expected but also deserved. Likewise, an episode of overeating may be viewed as evidence that weight loss efforts are doomed to failure. Beck's methods are useful at all points in the treatment process.

Clients may show a variety of cognitive distortions such as overgeneralizations or arbitrary inferences. In addition, clients may think in a self-defeating manner about a variety of areas such as the standards they set for themselves, how they evaluate perceived failures, or how they explain or make excuses for their behavior. At the start of treatment, the need to assess the client's expectations and attitudes about his or her obesity and weight loss has been mentioned earlier. It is at this point that the clinician may first encounter distorted thinking. If the client, for example, expresses his or her belief that she or he must lose all of her or his excess weight to feel that she or he has been successful, the therapist cannot only note this client's tendency to think in an either/or manner and to set potentially unrealistic goals but also endeavor to explore the beliefs that underly this thinking.

In a similar manner, self-defeating thoughts and beliefs should be evaluated throughout treatment. Some of these will be broader in nature (e.g., "I'm fat so it is no wonder no one respects me"), whereas others will be more specific (e.g., "Well, I've cheated again; I might as well give up for today" or "I just can't bear to not have those cookies. It's not fair that I can't ever treat myself"). Through discussion, the client can be helped to realize that, logically, one episode of overeating does not ruin the diet and that accepting such a belief is demoralizing and self-defeating. The client can gradually learn to counter such thoughts (e.g., "O.K. I did overeat this morning but that doesn't mean things are hopeless. I can plan my next two meals to balance out the extra I've had").

People's thoughts typically become automatic over time, and the underlying beliefs are difficult to articulate. Thus, expanding self-monitoring to include cognitions is often a fruitful strategy. Clients may be instructed to work on identifying and writing down their thoughts over the course of the day when events occur that are likely to provoke a self-defeating thought. For example, a client might weigh herself and find that she has not lost any weight in the last 3 days and immediately think something like "It just goes to show that I'm no good and won't ever get this fat off." The client then writes down this thought. As her ability to monitor her thought improves, she can then begin to write down more rational alternatives. Many individuals also find it useful to rate on a 0 to 100 scale their degree of belief in the original and alternative thoughts. This monitoring provides material for therapist–client interaction and a means for the client to see her progress.

Cognitive methods can be applied to help the client achieve and maintain behavioral changes in addition to countering negative thoughts. Clients may cognitively instruct themselves on various behaviors (e.g., "It is almost time to start dinner. First, I'll lay the table settings and then start cooking. I need to remember to make a little less than I usually have and to put everything away before we start eating so that I won't nibble on my son's leftovers or the extra food on the counter"). It is also of value for clients to note and reinforce themselves for their behavior (e.g., "Great. I had toast instead of a Danish for breakfast again. I've been doing a good job of that").

Combining cognitive and behavioral methods gives the therapist and client an increased number of options and optimizes the likelihood of finding a strategy that is most effective.

Cognitive intervention is especially helpful in modifying long-held beliefs that may undermine the effectiveness and continued use of behavioral methods.

NUTRITION

The main goal of the nutritional component of a weight loss program to ensure a balanced intake of essential nutrients in the context of calorie restriction. For the majority of clients, the daily diet should be approximately 1,500 calories for men and 1,200 for women that will result in a calorie deficit of roughly 500 calories per day. These calorie levels are suggested along with modest, increases in physical activity to achieve a 1- to 2-pound-a-week rate of weight loss. The client's previous experiences and particularly the self-monitoring forms are extremely useful in altering total intake or specific types of foods as necessary. A focus on the components of the diet is probably as important as the total numbers of calories eaten (Flatt, 1987). Evidence from animal as well as human studies suggest that the high fat diet typical of Western countries (i.e., 40% of total calories) is not only associated with disease but also with increased rates of obesity. Recommendations, then, are to reduce the percentage of calories from fat to no more than 30% of the diet, those from protein to between 12% and 15%, and from carbohydrates at least 55%. The latter should be predominantly derived from complex

TABLE 4. Sample Food Exchange Plan

Specific examples of food items within each of the food exchange list

Food exchange list	Food group	Specific food example (= means the two items are interchangeable)
1	Milk	1 cup skim milk = 1 cup yogurt made from whole milk
2	Vegetable	½ cup celery = ¼ cup grape juice
3	Fruit	½ small mango = ½ cup grape juice
4	Bread	1 slice whole wheat bread = ½ cup bran flakes = 6 saltine crackers = ¼ baked beans = 1 small white potato
5	Meat (Lean)	1 oz sirloin beef = 3 sardines
6	Meat (Medium Fat)	1 oz boiled ham = 1 egg
7	Fat	1 teaspoon margarine = 2 teaspoon mayonnaise

Total food exchanges in an 1,800-KCAL diet

Food list	No. of exchanges	Protein (g)	Carbohydrate (g)	Fat (g)	Kcal
Nonfat milk	2	16	24	0	160
Vegetables	4	4	10	0	50
Fruits	5	0	50	0	200
Bread	9	18	135	0	630
Meaty, lean	8	56	0	24	440
Fat	7	0	0	35	315
Total		94	219	59	1,795

carbohydrates (e.g., bread, fruits) rather than sources such as sugar or alcohol. High-calorie foods that contain substantial amounts of fat and sugar are especially risky because they are not only calorically dense but also, by their very palatability, promote overeating. Having a variety of foods is important for assuring proper nutrition as well as an enjoyable food selection. However, the variety of foods chosen as well as the preparation and display of foods can be done to enhance satisfaction and weight control. Similarly, because many people and especially dieters frequently neglect nutrition, attention must be spent—perhaps using a system such as the four food groups—to ensure adequate nutrition while reducing calories, cholesterol, sodium and so forth in the efforts to improve health.

Although some clients will be well informed about the nutritional and caloric characteristics of foods, most people will benefit from structured guidance in choosing their diets. An exchange system is a good method for assisting clients to select a variety of acceptable foods that will meet calorie and nutrition needs. Exchange lists break foods down into food groups and provide calorically equivalent portions for a large number of foods in each group. An example of a food-exchange plan and specific foods is shown in Table 4. Further information about the development and use of food exchange lists can be obtained from a registered dietician or through a detailed booklet jointly produced by the American Diabetes Association and the American Dietetic Association (booklets can be ordered from the American Dietetic Association, P.O. Box 909705, Chicago, IL 60690. Enclose $1.25 per copy plus $2.50 for shipping and handling). Depending on the individual, menus may be useful at the start of treatment. However, the goal is to instill in the client the ability to develop dietary habits that promote weight loss and maintenance. Preplanning meals is a useful way to enhance adherence and reduce impulsive eating and food purchasing.

EXERCISE

Weight is maintained by a balance between caloric intake and caloric expenditure. In the past, weight loss programs have promoted weight loss primarily by reducing caloric intake and have given less attention to losing weight by increasing energy expenditure. In part, this bias toward food restriction stemmed from the popular conception that it takes an inordinate amount of exercise to produce a small weight loss. Because few people on weight loss diets were interested in becoming Olympic champions, it appeared easier and more efficient to shave off a few calories by forgoing a piece of apple pie. Indeed, most people appear more able or at least more willing to create a negative energy balance by eating less rather than exercising more. On the whole, studies comparing behavioral programs with and without an exercise component found that programs with an exercise component produced only slightly greater losses (Pi-Sunyer, 1987; Wirth, 1987). However, some of these same studies as well as others have shown that people exercising regularly after the completion of treatment kept off a larger percentage of weight losses. Thus, exercise appears to enhance the maintenance of weight initially lost through food restriction.

On the basis of evidence such as the foregoing, greater attention has been focused on the benefits of an exercise component in comprehensive treatment programs for the obese. Exercise is clearly an important component of the maintenance phase of any weight loss program, as indicated before. However, it can also make a number of useful contributions to the initial stages of weight loss. First, moderate levels of exercise may reduce appetite, and good evidence exists indicating that moderate increase in exercise does not increase food intake (Pi-Sunyer, 1987; Wirth, 1987). Thus moderate amounts of exercise actually help an individual make her or his calorie goals. Exercise only increases appetite and consequently food intake when there are large increases in exercise. Second, exercise may increase an individual's metabolism for short periods after exercise as well as the thermic effects of food intake. Thus,

if an individual exercises shortly before eating, a somewhat smaller percentage of the calories consumed will be available for storage in adipose tissue. Third, exercise helps increase the loss of body fat and preserves lean body mass. As a result, a larger quantity of the weight lost is fat. Fourth, exercise is a constructive alternative to snacking. Going for a walk around the block not only helps to controlling intake but also uses up a small number of calories. On a regular basis, substituting modest forms of physical activities can have a marked benefit on energy balance.

Regular physical activity has a variety of positive effects on physiological and psychological functioning. Exercise can improve many of the physical consequences of obesity such as hypertension, diabetes, coronary heart disease, and arthritis. Exercise, for example, helps reduce blood pressure, changes serum lipids, and increases insulin sensitivity (Wirth, 1987). Exercise can also have a positive effect on psychological functioning (Folkins, 1976). Dieting is often associated with anxiety, depression, and other negative moods. Similarly, as described earlier, obese individuals frequently have a negative and derogatory view of their physical self and a poor self-image. Dieting may also cause considerable stress (Polivy & Herman, 1983) because food intake must be constantly monitored and because of the severe deprivation of an important ingredient of the social fabric and sustenance. Exercise has been found to be effective way to reduce depression and stress (Freemont & Craighead, 1987; Sachs & Buffone, 1984) as well as an effective way to improve self-image. Positive changes in mood appear to occur within a period of weeks and do not seem to be dependent on level of aerobic fitness. Thus, exercise may help in the management of the often transient but potentially troublesome emotional correlates of dieting. In addition, a regular program of physical activity is one way overweight persons can act to improve how they feel about themselves.

Exercise programs for the obese are typically broken down into two types: life-style and programmed exercise. Life-style exercise refers to ways of increasing energy expenditure by

TABLE 5. Calories Expended for 10 Minutes of Physical Activity

	Body weight				
Activity	56.8[a] 125[b]	68.2 150	79.5 175	90.9 200	113.6 250
Sitting quietly	10	12	14	16	20
Domestic housework	34	41	47	53	68
Walking downstairs	56	67	78	88	111
Walking upstairs	146	175	202	229	288
Walking (2 mph)	29	35	40	46	58
Walking (4 mph)	52	62	72	81	102
Jogging (5.5 mph)	90	108	125	142	178
Running (7 mph)	118	141	164	187	232
Cycling (5.5 mph)	42	50	58	67	83
Cycling (13 mph)	89	107	124	142	178
Mowing grass (power)	34	41	47	53	67
Mowing grass (manual)	38	45	52	58	74
Chopping wood	60	73	84	96	121
Bowling (nonstop)	56	67	78	90	111
Dancing	35	42	48	55	69
Dancing (vigorous)	48	57	66	75	94
Golfing (walk)	33	40	48	55	68
Skiing (cross-country)	98	117	138	158	194

[a]Expressed in kilograms.
[b]Expressed in pounds.

increasing the amount activity in everyday life. Examples of increased life-style activity include parking the car farther from one's destination and walking the extra distance, getting off the elevator one or two floors beneath one's destination, and walking up a couple flights of stairs, cleaning the house more vigorously by stretching while dusting, planning the sequence of household chores so that one needs to walk up and down the stairs more, and answering the phone on a different floor.

Programmed exercise refers to structured exercise programs such as aerobic and dance classes. A walking program is frequently used as an initial starting point. Subjects are instructed to start a moderate program of walking every day. They can start with any amount of walking (e.g., walking around the block) and then, over time, they increase the distance and pace of their walking. It can be pointed out that vigorous walking expends approximately the same amount of calories as jogging and is safer for bones, joints, and muscles than running.

In choosing the type of programmed exercise that will work for an individual, consideration of his or her interests should be given. If they have always wanted to swim, then joining a swimming club would be a good idea. Likewise, if possible, exercise programs should be developed around individual interests: tennis, skiing, softball, bicycling, swimming. However, vigorous sports are usually too strenuous for the obese when they are just beginning to lose weight. Therefore, a plan for gradually increasing activity is needed. For example, it may be most reasonable to start with a walking program during the initial part of a weight loss program. As fitness improves, the individual may be more ready to start with other more vigorous activities such as tennis, jogging, and bicycling. As always, it is important to get medical clearance before starting any exercise program. The exercise component of the program should aim for a 2- to 3-hundred calorie increase in daily activity. This may sound like a lot until one considers that for a 175-pound person, a slow walk will expend 200 calories in about 50 minutes. Table 5 shows the average number of calories a variety of leisure household and work activities used in a 10-minute span. Thus relatively modest changes in daily activities and a small but regular program of programmed exercise will add up to a significant increase in energy expenditure. How quickly a particular client should plan to reach the 2- to 3-hundred-calorie level will depend on initial weight, level of activity, as well as other individual characteristics.

The major problem related to physical activity programs is that over 50% of the people who begin a program either on their own or in a group format stop exercising within 6 months (Martin & Dubbert, 1982). Overweight individuals are especially likely to stop exercising. Both the client and therapist need to be aware of the fact that exercise programs will have few salient reinforcing consequences in the initial weeks of increased activity. A number of steps may help to enhance long-term involvement in an exercise program by maximizing the positive and minimizing the negative aspects of physical activity. Clients should choose activities of interest if possible and build up slowly in order to avoid injury or soreness. If possible, a variety of activities should be done to reduce boredom or mental fatigue. Exercising with others or in a setting such as a YMCA will provide a helpful support structure for many people. As with eating behavior and dietary intake, physical activity should be monitored. Similarly, self-reinforcement and goal-setting techniques may be used as a means for increasing the likelihood of sticking to a regular schedule of physical activity.

RELAPSE PREVENTION

The relapse prevention model was developed by Marlatt and his associates (Marlatt & Gordon, 1985) as an approach to understanding and treating addictive behaviors. Clinical evidence has long suggested that individuals with problems of overdrinking, eating, and so on often are able to control intake for large periods of time. However, at some point, a situation or event inevitably arises (e.g., a party or an unpleasant day at work) resulting in a slip or lapse.

One or more lapses then frequently result in a relapse into the problem behavior for the rest of the day, week, or so on. Relapse then is likely to culminate in giving up all efforts to control the behavior.

A figure of the model (see Figure 2) shows the various components, as well as possible points and methods for intervention. The initial step in preventing relapse is identifying situations that are likely to create problems. These high-risk situations may be either interpersonal (e.g., being at a party) or intrapersonal (e.g., feeling bored). Self-monitoring plays a critical role in identifying these situations. Imaginal or role-played situations may also be useful forms of assessment.

Once the client is better able to identify problematic situations, he or she can begin to develop coping responses. In some cases, helping the person to identify alternative behaviors is useful as is planning ways to reduce or eliminate the risk; obviously, some problematic situations are unavoidable or at least are not avoidable on a long-term basis (dining out, stress). In this situation, clients also need assistance in developing appropriate skills as well as in applying skills they already possess. In some cases, a person may readily be able to use a relevant skill but fail to do so due to anxiety or other cognitive or emotional factors. Stress-reducing interventions or relaxation training may, for example, help a person be more assertive in refusing food offers. On the other hand, practice in and out of sessions combined with modeling and feedback from the therapist can aid clients to learn and apply alternatives to eating inappropriately. For example, rather than avoiding having lunch with friends in order to eliminate a high-calorie meal, the person can plan alternate activities with friends that do not revolve around eating or plan ahead where to go and what to order in order to maintain the control of intake. An important additional component is examining the client's expectations about the expected benefits of problem behavior. The person may explain how much he or she enjoys his or her meals with friends but can be helped in putting the situation into a context so that the focus is on decreasing intake while maintaining or even enhancing the source of the

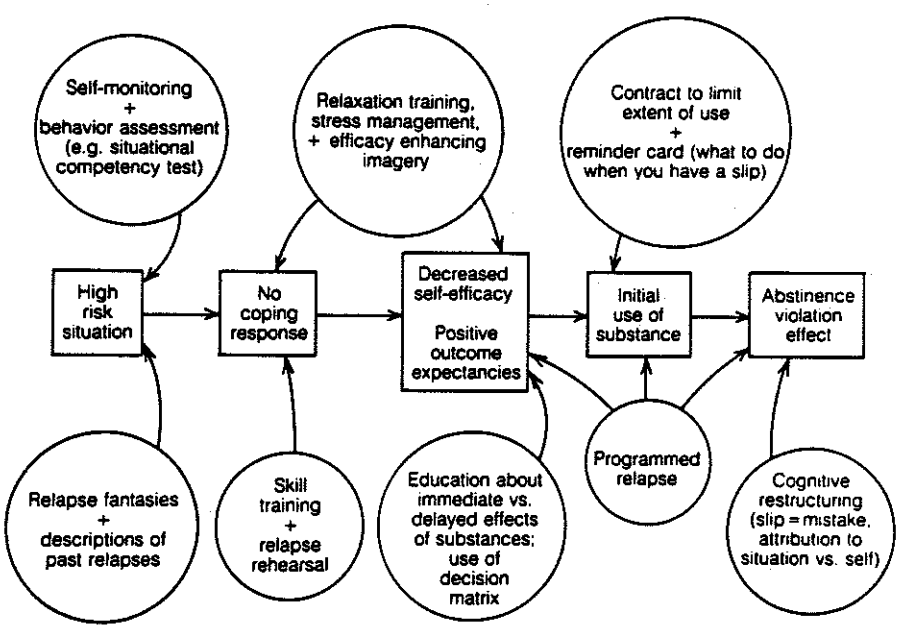

FIGURE 2. An example of decision-making and coping skills applied to the lapse and relapse process. Boxes represent the stages in the process and circles represent examples of interventions targeted at each stage. Reprinted by permission from G. A. Marlatt & Gordon, J. R. (1985). Relapse prevention: Maintenance strategies in addictive behavior change (p. 54). New York: Guilford Press.

positive feelings (i.e., spending time with a friend). Lapses or slips will naturally occur from time to time. Clients should be told that such lapses are inevitable and can be used as a way for improving their abilities to control their eating rather than as a sign of failure. Clients frequently react to a lapse by attributing it to their own weakness and feel guilty about not upholding their plan to be a "successful dieter"—"I've blown it again. If I weren't so much of a slob I could control myself. I might as well give up." Marlatt and Gordon (1985) term this reaction the abstinence violation effect (AVE). Cognitive techniques such as those described by Beck are useful in relabeling the lapse as a single mistake that does not indicate that the person is a failure and that success in the future is impossible. The therapist and client also analyze the situation in order to determine what led to the lapse and what needs to be done to handle it on other occasions. An important overall concern in working with the client is to emphasize the development of self-fulfilling (i.e., *wants* in Marlatt's approach) activities and the reduction of expected behaviors (*shoulds*). Long-term behavior change is extremely difficult if the individual continually feels that he or she is depriving him- or herself or restricting his or her life for the sole positive outcome of weight control. In sum, creating a life-style that balances the client's goals and expectations enhances the chances of continued success.

SUMMARY

Obesity is a complex disorder requiring complex intervention and permanent changes in life-style. Although the failure of most persons to achieve permanent weight loss in relatively short-term treatment programs is often taken as evidence of the intractible nature of obesity, an equally valid conclusion is that an acute disease treatment model is inappropriate. Certainly, obesity demands serious treatment by the clinician. However, successful intervention also demands a long-term committment by both the therapist and the client. Too often, a short course of intervention is expected to produce clear-cut success. In reality, obesity is quite similar to psychiatric disorders such as depression or medical disorders such as diabetes. Initial treatment may result in large benefits for the client but continued effort and, frequently, renewed intervention is necessary.

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